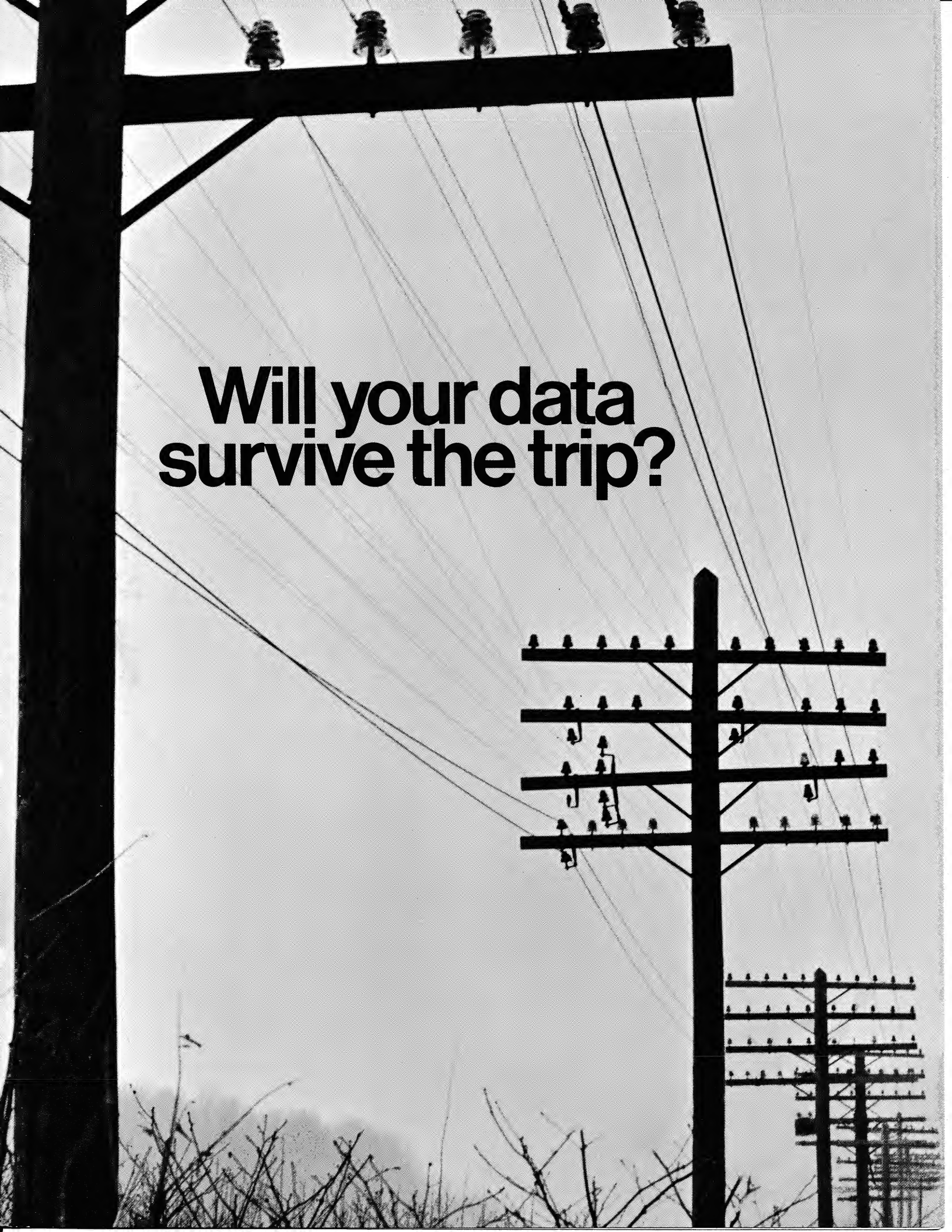

Will your data
survive the trip?



Data survival kit.

There is no longer any reason for data to get lost in transit. This new acoustic coupler made by Applied Digital Data Systems delivers data alive and well over lines noisier and 10 times weaker than other couplers can tolerate.

Instead of blaming the telephone company for poor transmission, we've solved the problem right in the coupler. We've learned to control a phenomenon that has been playing havoc with acoustic couplers for years—second harmonic distortion. Which has to do with the transmitted signal interfering with the received signal. We've found the best angle to position the handset. And we've just about eliminated environmental acoustic noise as a problem.

Having brought harmony to data transmission, we can transmit at three times higher power than other couplers. And we can receive much weaker signals than other couplers.

It's nice to know that data can now travel safely.

General Information. The COM-100 series includes several low speed data modems that will transmit and receive asynchronous digital data at a rate of up to 300 baud. They operate over the dial up telephone network, in half or full duplex, and are compatible with Bell System 103 data sets. They interface directly with Teletype* printers arranged for current loop operation, or any equipment with an EIA RS-232-B interface.

Acoustic or Hardwire Coupling. The COM-100 series gives access to the telephone line by either acoustic/acoustic coupling to the handset of a standard telephone, or by direct hardwire connection via a Bell System DAA (Data Access Arrangement).

Acoustic coupling offers the advantage of portability, allowing communication from any location where there's a telephone. Hardwire coupling eliminates portability, but gives increased reliability. (Errors due to environmental acoustic noise and signal distortion caused by the telephone handset are non-existent when a DAA is utilized.)

*Registered trademark of Teletype Corporation.

The COM-110 is for acoustic coupling only. The COM-120 is for hardwire connection only. The COM-130 offers access to the line by either method and is useful in situations where installations of a DAA have not been completed, or where portability is required only part of the time.

Second Harmonic Problem Solved. The reliability of the COM-100 series of acoustic couplers approaches that normally associated only with hardwire modems. That's because our design virtually eliminates the second harmonic distortion problem that has been plaguing acoustic couplers for years.

This problem stems from the non-linear characteristics of the telephone microphone which cause a second harmonic of the transmitted signal to be generated. This harmonic, in the same frequency band as the received signal, couples into the receiver section of the telephone and interferes with the received signal.

We've found a unique method* that virtually cancels generation of the second harmonic regardless of the characteristics of the microphone. The result is a lower error rate, reliable full duplex operation over lines of up to 30 dB attenuation, and reliable half-duplex operation over lines of up to 40 dB attenuation.

So there is no longer any need to dial and redial the computing center in order to find an acceptable line.

Acoustic Shielding. With the COM-100 series, the telephone handset is completely enclosed within an acoustic chamber. This chamber employs shielding that protects acoustically coupled data from environmental noise.



The cradle is built into the door. Upon closing the door, the handset is completely enclosed.

Optimum Handset Placement. Most acoustic couplers use a horizontal, or face-down, position for the handset, even though the telephone handset was originally designed for use in a vertical position.

*Patent applied for

Our tests have shown that vertical placement is the optimum position. It results in greater signal stability and less distortion by the carbon microphone. And this is the position utilized in the COM-100 series.

Optimum Performance at Lower Baud Rate. For communication at lower rates (e.g. 110 or 150 baud), an acoustic coupler will give better performance and reliability if the bandwidth of the filters in the receiver section can be narrowed. This adjustment can be made on the COM-100 series data modem.

Options

Remote Echo Option.* A computer cannot normally confirm the accuracy of its data transmission to a remote teleprinter. However, a COM-100 series data modem with the "Remote Echo" option will echo the received data back over the unused reverse channel for verification by the computer and, for example, subsequent repeat printout. This feature can be turned on and off under computer control so that only critical data will be echoed. Escape from the remote echo mode can be achieved by striking any key on the teleprinter keyboard. (The user can specify the control codes he will utilize for the echo on, echo off and escape functions.)

Parallel Input/Output Option. A COM-100 series data modem can be provided with a direct parallel interface (at TTL levels) to the user's terminal. This option avoids the need for the user's equipment to serialize and de-serialize data. Instead, when receiving, the COM-100 series modem will detect each bit (by digital integration), assemble the bits into a character and transfer each character to the terminal. A parity check is provided for each received character. When sending, the COM-100 series modem accepts bit parallel characters from the terminal, serializes and transmits.

Data Rates and Character Formats. A standard COM-100 series modem will transmit data at any speed up to 300 baud and in any character format. However, if either of the above two options are ordered, data rate and character format must be specified from among those below.

Data rates available include speeds of 110, 134.5, 150 and 300 baud. Stability of received data must be better than ± 2.5%.

Character formats may be:

- 7 bit, 9 unit (start, 6 data, parity, stop)
- 8 bit, 10 unit (start, 7 data, parity, stop)
- 8 bit, 11 unit (start, 7 data, parity, stop, stop)

Start bit is always spacing (low level), stop bit(s) is always marking (high level). Parity bit can be odd, even, always marking, or always spacing.

Specifications

General	Acoustic/hardwire data modem compatible with Bell System 103 data set.
Models	COM-110: acoustic only. COM-120: hardwire only. COM-130: acoustic and hardwire.
Operating Modes	Originate only, half or full duplex.
Transmission	Asynchronous, 300 baud maximum.
Coupling to Line	Hardwire: via Bell System DAA (Data Access Arrangement). Acoustic: acoustic/acoustic compatible with standard telephones.
Modulation	Transmit: mark—1270 Hertz. space—1070 Hertz. Receive: mark—2225 Hertz. space—2025 Hertz.
Transmitter Stability	Better than ± 0.5% over full temperature and voltage range.
Transmitted Output Power (on the line)	Acoustic: −11 dBm, average. Hardwire: −8 dBm (other levels may be specified).
Acceptable Line Attenuation	Acoustic (full-duplex): 30 dB line attenuation. Acoustic (half-duplex), Hardwire: 40 dB line attenuation.
Terminal Interfaces	TTY: 20 ma at 10 volts. EIA: conforms to RS-232-B specification. Parallel I/0 (option): TTL compatible levels. Standard character formats and data rates shown on the previous page.
Power	115 ± 10% VAC/60 Hertz, 20 VA, 6-foot line cord provided.
Controls and Indicators	Controls: Power On/Off, Half-Full Duplex, Echo On/Off (optional). Indicators: Power, Carrier.
Physical	Size: 10"x13½"x5", desk or wall mounted. Weight: 8 pounds (approx.)
Environmental	Operating Temperature: 0 to 50°C. Storage Temperature: −40 to 85°C. Operating Humidity: 10 to 90%.

ADDS
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